

Utah Prairie Dog Stewardship Plan
Preliminary Alternatives Matrix (12-10-12)
Bryce Canyon National Park

Alternative	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
<i>Title</i>	No Action (Continue Current Management)	Improve Utah Prairie Dog Management in Connected Colonies	Reduce Administrative Conflicts and Improve Utah Prairie Dog Habitat Quality in Select Colonies	Optimize Utah Prairie Dogs and Prairie Dog Habitat Quality throughout the Park	Increase Interpretive and Educational Opportunities and Improve Utah Prairie Dog Habitat in Current and Historic Visible Colonies
<i>Component</i>					
<i>Theme</i>	Continue current management (includes existing plans and approved projects).	Collaborate with partners to maintain existing populations; reestablish historic and/or viable populations and habitat; and to expand connectivity between colonies.	Minimize conflicts between Utah prairie dogs and park operations and improve habitat quality in select colonies (beyond current needs of existing prairie dog population).	Collaborate with partners to optimize the number of prairie dogs and to improve habitat quality.	Increase the number of prairie dogs and improve prairie dog habitats with a focus on visible colonies and an enhanced array of collaborative interpretation and education strategies.
Prairie Dog Stewardship Strategies					
<i>Intent</i>	Continue to manage prairie dogs under current strategies, including programmatic agreements for hazard burrow filling, snow removal (Mixing Circle) and gravel / manure maintenance at the Mixing Circle.	Increase number of prairie dogs and enhance habitat to link colonies north of the park in the Paunsaugunt Recovery Unit* to enable this keystone species to thrive in current and historic habitat.	Improve prairie dog habitat quality in colonies to enable this keystone species to thrive in habitats where administrative operations are minimal.	Increase number of prairie dogs and enhance habitat in active colonies to enable this keystone species to thrive in suitable habitat.	Increase number of prairie dogs and enhance habitat to enable this keystone species to thrive in visible colonies.
<i>Prairie Dog and Habitat Management: General</i>	Continue to protect current prairie dog colonies and to identify characteristics that contribute to sustaining them.	Same as Alternative A plus: Protect historic, current and suitable Utah prairie dog habitat unless	Prioritize conservation efforts in colonies that do not conflict with administrative activities. Reduce conflicts using	Protect historic, current and suitable Utah prairie dog habitat unless protection poses immediate or substantial risk to	Protect historic, current and suitable Utah prairie dog habitat unless protection poses immediate or substantial risk to

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	Continue to conduct periodic treatments to prevent plague.	protection poses immediate or substantial risk to human health and safety (as corroborated by USFWS). Focus on large colonies and large areas of suitable habitat that are connect to colonies outside the park.	visual or physical barriers where colonies interfere with park operations.	human health and safety (as corroborated by USFWS). Focus on historic and existing colonies throughout the park, improving connectivity within the park between large and small colonies to increase the stability of the park's populations.	human health and safety (as corroborated by USFWS). Focus on visible colonies (those that can be seen by visitors).
<i>Translocation: General</i>	Use opportunistic translocation strategies (no active translocation into park, no augering and no nest boxes).	Active translocation but not within ¼ mile of a paved road.	Same as Alternative B	Same as Alternative B	Active translocation in visible colonies, including suitable habitat with ¼ mile of paved roads.
<i>Translocation Site Preparation</i>	n/a	Auger burrows in translocation locations.	Auger burrows in translocation locations. Use small-scale capped nest boxes at some sites.	Same as Alternative C plus: Use large-scale capped nest boxes in connected colonies (East Creek Meadow, North Mixing Circle, and Fairyland).	Same as Alternative C
<i>Source of Prairie Dogs for Translocation (requires USFWS approval)</i>	n/a	Use Mixing Circle as a source population for translocation within the park. Identify trigger point for relocating prairie dogs from Mixing Circle Colony.	Reduce Utah prairie dog colony size at the Mixing Circle following corral relocation. Obtain prairie dogs opportunistically from other natural areas in the Paunsaugunt Recovery Unit.	Reduce Utah prairie dog colony size at the Mixing Circle following corral relocation. Conduct collaborative translocation in greater numbers using Utah prairie dogs from other areas (natural and developed) within	Same as Alternative C

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				the Paunsaugunt Recovery Unit.	
<i>Reestablishment Locations</i>	Conduct passive translocation in East Creek Meadow as opportunities arise, including through USFS translocations adjacent to park boundary.	Reestablish Utah prairie dogs in the North Mixing Circle and conduct phased translocation in East Creek Meadow and Fairyland near USFS border (in cooperation with the USFS, UDWR and Bryce Canyon City.)	Improve Mixing Circle and conduct phased translocation in East Creek Meadow near USFS border (if necessary) in cooperation with USFS and UDWR.	Same as Alternative B plus: Conduct translocation in historic meadows (Fairyland, throughout East Creek Meadow, Dave's Hollow, Paria, etc.) in cooperation with USFS, UDWR and Bryce Canyon City.	Conduct translocation in meadows visitors can see (Fairyland, East Creek Meadow near main park road and Rainbow Gate) in cooperation with USFS, UDWR and Bryce Canyon City.
<i>Predators</i>	n/a	n/a	Physical overnight presence (NPS).	Hazing. Physical overnight presence (volunteers). Use volunteers and organized groups to provide initial protection.	Same as Alternative D
Vegetation Management Strategies					
<i>All Locations</i>	Opportunistic nonnative invasive plant species control and restoration. Actions would continue to be consistent with Vegetation Management Plan (VMP) and Fire Management Plan (FMP). Use manual, mechanical, herbicide, seeding and planting	As in Alternative A, use full range of vegetation management treatments to treat nonnative invasive plants. Actions would continue to be consistent with VMP and FMP. Seed forbs and grasses Implement a schedule	Same as Alternative B plus: Expand/maintain meadow habitat in active colonies. Use different vegetation management prescriptions for each meadow. Plant forbs and grasses, and conduct	Same as Alternative B plus: More intensive tree and shrub removal.	Same as Alternative D in identified areas (focus vegetation management in visible colonies).

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	<p>treatments (according to VMP) to treat nonnative invasive plants mechanically and using herbicides near active colonies (based on current VMP -- including mitigation measures to reduce impacts of herbicides).</p> <p>Implement periodic mechanical fuel reduction and prescribed fire based on the FMP.</p>	<p>to use prescribed and wildland fire in prairie dog colonies to improve habitat.</p>	<p>tree and shrub removal.</p> <p>Selectively plant or retain vegetative barriers to discourage colony movement into administrative areas.</p>		
<i>Dave's Hollow Actions</i>	<p>Continue to conduct mitigation related to ongoing park projects, including some treatment of nonnative invasive species, and fire management actions.</p> <p>Some sapling reduction proposed (2013).</p>	<p>Enhance habitat on north end of Dave's Hollow meadow.</p> <p>Expand meadow corridor using tree thinning to improve connectivity.</p>	<p>Enhance habitat using tree thinning, limited nonnative species treatment, and some shrub removal.</p>	Same as Alternative C	Same as Alternative A
<i>Fairyland Actions</i>	<p>Limited treatment of nonnative invasive plants.</p>	<p>Enhance habitat by reclaiming meadows from forest encroachment using tree thinning to improve connectivity.</p>	<p>Same as Alternative B plus:</p> <p>Increase nonnative invasive plant species treatments, shrub removal, and seeding to increase plant biodiversity.</p>	Same as Alternative C	<p>Limited habitat enhancement on south side of meadow near showcase colony – some shrub removal and limited tree thinning.</p>
<i>East Creek Meadow Actions</i>	<p>Some shrub removal around historic burrows.</p>	Same as Alternative A	<p>Shrub removal in entire Habitat Conservation Area (~150 acres); some</p>	Same as Alternative C	<p>Limited shrub removal on historic burrows from USFS boundary to viewing platform</p>

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	Treat nonnative invasive plant species. Habitat monitoring.		native seed planting; translocation of native forbs.		adjacent to main park road to enhance connectivity and recolonization.
<i>Mixing Circle Junction Actions</i>	Limited treatment of nonnative invasive plants. Some tree sapling reduction proposed (2013).	Plant screening vegetation along Mixing Circle Junction roadway fence. Limited shrub removal in main colony.	Same as Alternative B plus: Conduct nonnative plant species treatments and reseeding.	Same as Alternative C	Same as Alternative C
<i>Mixing Circle Actions</i>	Very limited treatment of nonnative invasive plants.	Same as Alternative A	Same as Alternative A plus: Enhance habitat by increasing native plant species diversity. Remove shrubs using fire and herbicide treatments. Exclude prairie dogs where undesirable. Link habitat to North Mixing Circle and Dave's Hollow.	Same as Alternative C	Same as Alternative A
<i>Paria Actions</i>	n/a	n/a	Provide habitat connectivity to East Creek Meadow using prescribed fire to open up habitat (reduce black sage). Follow-up treatments with reseeding (if necessary).	Same as Alternative C	Same as Alternative A
<i>North Mixing Circle</i>	n/a	Enhance habitat in	Same as Alternative B	Same as Alternative B	Same as Alternative A

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<i>Actions</i>		meadow up to USFS boundary – reclaim habitat from forest encroachment using tree thinning to improve connectivity. Minimal nonnative species treatments and shrub removal.			
<i>Rainbow Gate Actions</i>	n/a	n/a	n/a	Remove shrubs, reseed with native grasses, and conduct nonnative plant treatments.	Same as Alternative D
<i>Partnership Actions</i>	Continue to cooperate with multiple agencies on regional recovery efforts.	Conduct joint vegetation management projects with partners to increase connectivity and expand habitat. Work with partners to avoid prairie dog colony expansion where undesirable.	Same as Alternative B	Same as B, plus: Focus on historic / active colonies.	Same as B plus: Focus on habitat in visible colonies.
Monitoring Strategies					
	Continue to conduct annual census of colonies according to USFWS protocol. Continue to track mortality within the park. Continue to conduct plague / disease monitoring and annual	Same as Alternative A plus: Establish target population goals for colonies.	Same as Alternative B plus: Active monitoring of habitat quality.	Same as Alternative C plus: Monitoring of prairie dogs throughout the season (pre-and-post pup emergence) and prior to dormant season.	Same as Alternative A plus: Active monitoring of habitat quality and prairie dogs at visible colonies.

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	<p>plague treatment of burrows.</p> <p>Continue annual reports to USFWS on actions in prairie dog colonies related to programmatic agreements.</p>				
Education and Interpretation Strategies					
Intent	No Change	Minor Expanded	Moderate	Moderate	Maximum
Fairyland	General public and administrative access on paved road to trails and wayside exhibit.	Same as Alternative A	<p>Same as Alternative A plus:</p> <p>Add paved accessible trail / boardwalk and wayside next to road.</p>	Same as Alternative A	Same as Alternative C
Interpretation	<p>Implement Wildlife Viewing pull-out project</p> <p>Continue to offer occasional interpretive programs on prairie dogs.</p> <p>Continue to provide information about prairie dogs at annual interpretive staff training.</p> <p>Continue to incorporate information about prairie dogs into the park newspaper.</p>	<p>Same as Alternative A plus:</p> <p>Improve training for visitor center staff</p> <p>Use signs to deter people from walking to the Mixing Circle Junction colony from Sunset Campground.</p>	<p>Same as Alternative B plus:</p> <p>Fairyland interpretive trail / boardwalk.</p> <p>Consider annual newsletter / pamphlet on recovery actions in park and region.</p> <p>Use museum exhibit curriculum to design a prairie dog component for area schools.</p>	Same as Alternative A	<p>Same as Alternative C plus:</p> <p>Incorporate vegetation data into interpretive materials.</p> <p>Add remote wildlife viewing cameras at some visible colonies.</p> <p>Locate moveable spotting scopes at multiple colonies on portable mounts.</p> <p>Formalize "Petey" as park mascot.</p> <p>Full interpretive</p>

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					<p>programming on prairie dogs, including regular evening program.</p> <p>Create rack cards.</p> <p>Provide online material for classes / interpretive programs.</p> <p>Conduct outreach at public events.</p>
Schools	Continue Utah Prairie Dog Day and school programs associated with that event.	Same as Alternative A	Same as Alternative A	<p>Same as Alternative A plus:</p> <p>Involvement of school groups during translocations/habitat improvement projects.</p>	<p>Same as Alternative D plus:</p> <p>On and off-site programs.</p> <p>Use park staff to conduct programs for local communities and schools.</p>
Concessioners	<p>Continue to work with Canyon Trail Rides and Forever Resorts to minimize impacts to prairie dogs.</p> <p>Continue to implement programmatic agreements for snow removal and gravel / manure maintenance at the Mixing Circle.</p> <p>Continue to improve recycling area operations.</p>	<p>Same as Alternative A plus:</p> <p>Identify location for Forever Resorts' composting container.</p> <p>Improve education for concessioners regarding prairie dog stewardship activities</p>	<p>Same as Alternative B plus:</p> <p>Amend Canyon Trail Rides contract or wait for renewal to relocate corrals.</p> <p>Provide concessions seasonal training on UTAH PRAIRIE DOG issues, including a field trip</p> <p>Involve wranglers in educating trail ride</p>	Same as Alternative C	<p>Same as Alternative B plus:</p> <p>Develop new partnerships that include Utah prairie dog viewing opportunities and tours.</p> <p>Consider a bike tour focused on visiting prairie dog colonies in park.</p>

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	Continue to manage manure removal.		participants about prairie dogs.		
Bryce Canyon Natural History Association	Continue to implement Adopt-a-Prairie Dog program and to sell related materials.	Same as Alternative A	Same as Alternative A	Same as Alternative A	Same as Alternative A plus add new strategies / programs and sales items. Consider prairie dog tracing sign at Mixing Circle Junction.
Partnerships / Research Strategies					
Intent	No change	Minor	Moderate	Extensive	Moderate
<i>General</i>	Continue to implement adopt-a-prairie dog program. Continue to attend Recovery Team meetings and to assist in the Recovery Implementation Program. Continue to cooperate with federal, state and local government agencies and universities as opportunities arise.	Same as Alternative A plus: Coordinate with other agencies and rely on partners to initiate / lead more intensive work.	Same as Alternative A plus: Hold biannual meetings with partners to improve recovery efforts. Increase outreach to experts in prairie dog biology by expanding university research opportunities. Encourage adjacent landowners to participate in implementation of stewardship plan. Expand strategies to reduce vehicle speed adjacent to colonies.	Same as Alternative A plus: Partner with Bryce Canyon City and USFS for translocations. Working with the USFWS and Utah Division of Wildlife Resources, evaluate opportunities to assist with prairie dog conflicts on the Paunsaugunt Recovery Unit.	Same as Alternative C plus: Improve cooperation with school districts (Garfield, Kane, and Iron) and educational institutions. Use the Utah Prairie Dog Recovery Implementation Team to facilitate transmission of educational information.
<i>Partner Activities: General</i>	Federal and state agencies (USFWS, USFS,	Same as Alternative A plus:	Same as Alternative A plus:	Same as Alternative A plus:	Same as Alternative D plus:

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	<p>BLM, Utah Division of Wildlife)</p> <p>Bryce Canyon Natural History Association.</p> <p>Concessioners (Canyon Trail Rides, Forever Resorts).</p> <p>Nearby counties (Garfield, Kane and Iron).</p> <p>Nearby towns (Bryce Canyon City, Panguitch, Tropic, Cannonville, Henrieville, Antimony).</p> <p>Universities (Southern Utah University, Utah State University).</p>	<p>Increase cooperation with federal agencies (USFWS, USFS, BLM, NRCS, etc.).</p> <p>Increase cooperation with counties (Garfield, Kane, Iron) and municipalities (Bryce Canyon City, Panguitch, Tropic, Cannonville, Henrieville, Antimony).</p>	<p>Other federal agencies (such as NRCS).</p> <p>Non-profit organizations (The Nature Conservancy, etc.).</p> <p>Other colleges and universities.</p>	<p>Garfield, Kane and Iron County School Districts.</p> <p>Other state agencies (Utah Department of Transportation).</p>	<p>Other organizations that focus on education.</p>
<i>Partner Activities: Specific</i>	<p>Continue to consult with Garfield County regarding continuing activities that may affect prairie dog management and conservation.</p> <p>Continue to consult with Bryce Canyon City regarding continuing activities on adjacent park lands that may affect prairie dog management and conservation.</p>	<p>Same as Alternative A plus:</p> <p>Consult / coordinate with Bryce Canyon City to determine if prairie dog translocation to Fairyland meets Habitat Conservation Plan (HCP) objectives and other considerations.</p>	Same as Alternative B	<p>Consult and coordinate with Garfield County regarding prairie dogs translocations and specific management actions as affected by or affecting County activities.</p>	<p>Consult and coordinate with Garfield County regarding prairie dogs translocations and specific management actions as affected by or affecting County activities.</p>

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<i>Concessioners</i>	<p>Continue to work with Canyon Trail Rides and Forever Resorts to minimize impacts to prairie dogs.</p> <p>Continue to implement programmatic agreements for snow removal and gravel / manure maintenance at the Mixing Circle.</p> <p>Continue to improve recycling area operations.</p> <p>Continue to manage manure removal.</p>	<p>Same as Alternative A plus:</p> <p>Identify location for Forever Resorts' composting container.</p>	<p>Same as Alternative B plus:</p> <p>Amend Canyon Trail Rides contract or wait for renewal to relocate corrals.</p>	Same as Alternative C	<p>Same as Alternative B plus:</p> <p>Develop new partnerships that include Utah prairie dog viewing opportunities and tours.</p>
<i>USFS</i>	Continue to cooperate as opportunities arise.	<p>Improve cooperation for habitat improvement and translocation in colonies adjacent to USFS boundary (East Creek Meadow, North Mixing Circle, Dave's Hollow, and Fairyland).</p>	<p>Work with USFS to continue translocation of prairie dogs near East Creek Meadow boundary and collaborate on habitat improvement and translocation site preparation in North Mixing Circle.</p>	<p>Same as Alternative C plus:</p> <p>Assess Fairyland habitat and collaborate on development of new translocation sites.</p>	<p>Same as Alternative A plus:</p> <p>Improve coordination with scheduled translocation when sites in visible colony locations are ready for repopulation.</p>
<i>USFWS</i>	Continue to consult with the USFWS regarding proposed actions that may affect listed species.	<p>Same as Alternative A plus:</p> <p>Increase early coordination / consultation with USFWS and UPD Recovery Implementation Team.</p>	Same as Alternative B	Same as Alternative B	Same as Alternative B
<i>Volunteers</i>	Continue to use	Same as Alternative A	Same as Alternative A	Same as Alternative C	Same as Alternative A

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	volunteers to implement park programs related to Utah prairie dogs. Continue to educate Mixing Circle RV area residents.		plus: Use dedicated hunter program as source of volunteers for large scale projects.		plus: Use seasonal volunteers at waysides to provide focused interpretive talks on Utah prairie dog (Fairyland site).
<i>Research</i>	Continue to conduct research as opportunities arise.	Partner with universities to conduct research on vegetation and prairie dog health to further knowledge of prairie dog biology.	Same as Alternative B plus: Focus research on habitat quality, soils and hydrology.	Same as Alternative B plus: Focus research on how to maintain translocated prairie dogs and habitat quality.	Same as Alternative B plus: Focus monitoring and research on how to improve the health of Utah prairie dog ecosystems.
Recreation Strategies					
Bike tours / camera stations	n/a	n/a	n/a	n/a	Opportunity for bike tour of visible colonies. Locate moveable spotting scopes at visible colonies on portable mounts. Opportunities for live remote camera at active prairie dog colony.
Fairyland Interpretive Trail / Boardwalk	n/a	n/a	Fairyland trail	n/a	Fairyland Trail
Mixing Circle Strategies					
Intent	Reduce administrative conflicts	Same as Alternative A plus: Use Mixing Circle population for	Same as Alternative A plus: Identify trigger point for relocating prairie	Same as Alternative C plus: Rehabilitate Mixing Circle Colony habitat	Same as Alternative B

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		translocations within park. Link Mixing Circle to North Mixing Circle colony and Dave's Hollow. Passively encourage Utah prairie dogs to move away from Mixing Circle administrative operations.	dogs from Mixing Circle.	and link Mixing Circle to North Mixing Circle and Dave's Hollow.	
Park Operations	Continue to educate staff and partners about working within and around prairie dogs and prairie dog habitat. Continue to implement conservation measures from programmatic agreements. Continue to close dumpster lids. Continue to implement traffic control devices (speed control signs, speed bumps, and prairie dog crossing signs).	Same as Alternative A plus: Incorporate programmatic agreement actions into Prairie Dog Stewardship Plan.	Same as Alternative B	Same as Alternative B	Same as Alternative B
Mixing Circle Administrative and Maintenance Facilities	Retain facilities in current configuration and locations. Retain wrangler cabin as housing.	Improve (relocate, retain, and add new) facilities within and around Mixing Circle to improve operations.	Same as Alternative B.	Same as Alternative B, except: Relocate part of administrative road south of Mixing Circle.	Same as Alternative B

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		<p>Improve drainage on east side of Mixing Circle.</p> <p>Construct new facilities within the Mixing Circle area.</p> <p>Retain, move or repurpose the wrangler cabin.</p>			
Horse Concession Operations (Corrals)	<p>Retain corrals.</p> <p>Continue to implement proposed redesign and replacement of mangers.</p>	<p>Same as Alternative A plus:</p> <p>Expand corrals slightly.</p> <p>Improve drainage.</p> <p>Relocate horse trail to parallel Mixing Circle road and expand fencing.</p>	<p>Relocate horse corrals to day corral area.</p> <p>Amend contract or wait for renewal to relocate corrals.</p> <p>Daily removal of manure.</p>	Relocate horse corrals into forest south of Mixing Circle.	Same as Alternative B
Barriers					
Type	n/a	Locate physical barrier between prairie dog colonies and roads where high conflict occurs or separation is important (Mixing Circle, Mixing Circle Junction and Dave's Hollow) to reduce mortality.	<p>Same as Alternative B plus:</p> <p>Construct physical barriers adjacent to colonies and existing utilities (roads, well houses, manholes, etc.) where damage to administrative infrastructure could occur and to reduce mortality.</p>	Locate vegetative barriers between prairie dog colonies and roads to reduce mortality.	Use minimal vegetative barriers to separate prairie dog colonies from roads and facilities to reduce mortality.

*Paunsaugunt Recovery Unit (PRU): The PRU is primarily located in Garfield County, with small areas in Paiute and Kane Counties. There are 15,620 acres (6,321 hectares) of mapped habitat in the PRU. Approximately 30 percent of the mapped habitat occurs on federal lands, primarily within the Dixie National Forest. The PRU

contains up to 20 percent of all adult Utah prairie dogs. In any given year, 18-38 percent of the individual adults occur on public lands. Spring counts vary from 654 to 2,205 adult prairie dogs. The area experienced an increase to 1,153 prairie dogs counted in 2007, but decreased to 835 in 2010. Average prairie dog density in the PRU was 0.34 prairie dogs per acre from 2000-2007 (USFWS 2012).